Conclusions: The use of Uni Egms to select ostial sites for segmental isolation of PV's significantly reduces the number of ineffective energy applications and the total amount of RF energy required for a successful outcome.

POSTER SESSION

1208 Ablation Therapy: Accessory Pathways, Atrial Flutter, and Atrial Fibrillation

Tuesday, March 19, 2002, 3:00 p.m.-5:00 p.m.
Georgia World Congress Center, Hall G
Presentation Hour: 4:00 p.m.-5:00 p.m.

1208-111 Epicardial Mapping and Ablation of Atrioventricular Accessory Pathways: Correlation Between Success and Location

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Background: Accessory pathways (AP) associated with Wolf-Parkinson-White syndrome could have an epicardial location. We describe the results of endo-epicardial mapping and ablation of accessory pathways.
Methods and Results: Thirty-three patients underwent percutaneous pericardial access for mapping and ablation of different atrial and ventricular arrhythmias. In 6 of the 7 patients with an AP and supraventricular tachycardia the earliest activation was recorded epicardially. Three of these appeared to be right atrial appendage (RAA) to right ventricle APs, and only ablation with epicardial lesions was successful. The APs in the remaining 4 patients were in the left lateral (1 patient), right posterolateral (1 patient), and left posteroseptal (2 patients) locations. Although the epicardial sites were earlier than the endocardial sites in the patient with a right posterolateral AP and the 2 patients with a left posteroseptal AP, epicardial lesions were only transiently successful (right posterolateral AP) or unsuccessful (left posteroseptal APs). No complications were observed with pericardial ablation.
Conclusion: In our preliminary experience epicardial mapping and ablation of AP was safe. Despite the fact that in most instances the earliest activation times were recorded epicardially, successful ablation was then achieved with endocardial lesions. The right atrial appendage to ventricle AP represents a unique location requiring epicardial instrumentation for curative ablation.

1208-112 Prospective Randomized Comparison of Anatomic and Electrogram Mapping Approaches to Ablation of Typical Atrial Flutter

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Background: An anatomic approach (AA) may be used to create a line of complete block (CB) in the cavotricuspid isthmus to eliminate typical atrial flutter (AFl). An electrogram mapping approach (EMA), looking for gaps in the ablation line, also may be effective. The purpose of this prospective, randomized study was to compare the efficacies of EMA and AA in achieving CB during radiofrequency (RF) ablation of AFl.
Methods: RF ablation was performed using a 4-mm tip catheter in 64 patients with AFl. In all pts, a line of block was attempted using an AA during proximal coronary sinus pacing or during AFl. If the line was incomplete, the pt was randomized to either AA or EMA. In the AA, contiguous applications of RF energy were guided by fluoroscopy. In the EMA, RF energy was applied at sites with single potentials or narrowly split (£ 60 ms) double potentials. If the line was incomplete after 15 RF applications with either approach, then up to 15 additional RF applications were delivered with the alternative approach (1st crossover). If the line was still incomplete after the 1st crossover, then up to 15 RF applications were delivered with the initial approach (2nd crossover). CB was confirmed by the atrial activation sequence around the tricuspid annulus with a halo catheter and by the presence of widely split double potentials.
Results: 56 patients had incomplete block after an initial series of lesions and were randomized to the AA (n=28) or EMA (n=28). CB was obtained in 5 pts (18%) with AA and in 16 pts (57%) with EMA ($p<0.01$). After the 1st crossover, CB was achieved with EMA in 16 of the 23 pts (70%) initially randomized to AA. However, CB was achieved with AA only in 3 of the 12 pts (25%) initially randomized to EMA ($p<0.05$). After the 2nd crossover CB was achieved in 3 of the 7 pts (42%) with AA and in 7 of the 9 pts (78%) with EMA. In 6 pts (AA=4 and EMA=2), CB was not achieved after 2 crossovers. A new line was made at a different location in these pts. Conclusion: In pts with incomplete block after an initial ablation line, complete isthmus block may be achieved more quickly with an EMA than with an AA, when the AA is guided by fluoroscopy.

1208-113 Identification of Figure-of -Eight Reentry Circuits Around Anatomical Barriers in Patients With Typical Atrial Flutter

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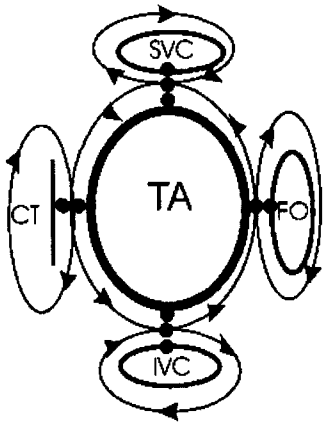
Typical atrial flutter (AFL) is a reentrant rhythm in the right atrium constrained anteriorly by the tricuspid annulus (TA) and posteriorly by the crista terminalis(CT). However, the nature of atypical AFL has not been established. Of 51 patients (pts) with typical AFL studied with an electro-anatomical mapping system (CARTO, Biosense Webster) , 5 pts (4 male, mean age 62 ± 14 years) were found to have an atypical AFL with the circuit bounded by anatomic barriers such that a figure- of- 8 pattern of reentry occurred in combination with the circuit around the TA. The concomitant atypical AFL (see Figure 1) included one circuit around the CT, the superior vena cava (SVC), and the fossa ovalis (FO), and two around the inferior vena cava (IVC). The mean cycle length of the atypical AFL was 327 ± 84 msec. Three atypical AFL (around the CT and IVC) shared a common isthmus between the CT/IVC and TA during typical AFL making recognition of the atypical AFL difficult.Two atypical AFL with circuits around the SVC/FO were induced by programmed stimulation post-ablation of typical AFL. Ablation (black dots in Figure 1) in the cavo-tricuspid isthmus eliminated all typical AFL and atypical AFL associated with the IVC. Additional linear ablation was required to eliminate atypical AFL at the narrowest isthmus between the TA and the CT, SVC, and FO respectively. Conclusions: Anatomical barriers such as the CT, SVC, IVC, and FO can support atypical AFL. Electro-anatomic mapping can facilitate mapping and ablation of atypical AFL.



1208-114 Comparison of Two Different Approaches for Catheter Ablation of Persistent Atrial Fibrillation: Pulmonary Vein Isolation Versus Left Atrial Linear Lesions

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Left atrial linear lesions has been shown to be effective in patients (pts) with atrial fibrillation (AF), in whom intraoperativ radiofrequency catheter ablation was performed to eliminate anatomically defined anchor reentrant circuit. Recently effective catheter ablation of AF was reported with pulmonary vein isolation. Aim of the study was to evaluate the success rate and the complication rate of these two approaches for catheter ablation of persistent drug refractory AF.
Methods: Left atrial ablation was performed with four linear lesions using non-contact mapping (NCM). The continuity of linear lesions was assessed by NCM. Pulmonary vein isolation was performed using a spiral multipolar catheter in combination with NCM.
Results: Ablation with linear lesion was performed in 14 pts. During follow up of 12 ± 7 month 6/14 (43%) pts remained in sinus rhythm without antiarrhythmic drugs and an additional 4 pts were maintained in sinus rhythm with antiarrhythmic drugs, resulting in an overall success rate of 71% of pts. In 1 pts with linear ablation a hemopericardium was observed, which had to be drained. Pulmonary vein isolation was performed in 20 pts. During a follow up of 10 ± 9 month 9 of 20 pts (45%) remained in sinus rhythm without antiarrhythmic drugs and additional 4 pts were maintained in sinus rhythm with antiarrhythmic drugs, resulting in overall success rate of 65% (13/20 pts).Two complications were observed with pulmonary vein isolation: hemopericard, and AV-fistula. No pulmonary vein stenosis or occlusion was observed.
Conclusion: No difference in ablation success and complication rates were observed between both approaches.

1208-115 Efficacy of Combined Treatment With Focal Ablation and Pulmonary Venous Isolation for Atrial Fibrillation

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Background: Pulmonary veins (PVs) are a major source of ectopic beats that trigger atrial fibrillation (AF), and focal ablation may be directed at these foci. However, complete electrical isolation of PVs is recently performed without focal ablation. We compared the efficacy of these therapeutic approaches.
Methods: Eighty patients with AF underwent PV ablation for AF. If extrasystoles or AF initiations were frequent, focal ablation was performed at the site of the earliest activation. If the patient had little or no ectopy, all PVs with distinct and late PV potentials were tar-